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SECTION 6

MEASURES TO MINIMIZE ADVERSE EFFECTS

Section 101(b) of the National Environmental Policy Act requires that federal agencies incorporate into project planning all practicable measures to mitigate adverse environmental impacts resulting from the proposed action. Where applicable, proposed mitigation measures reflect comments received from the public, and state and federal review agencies in the Draft EIS, and as a result of the public hearing. Agency coordination and continued development of mitigation measures for various impact categories will continue throughout subsequent project phases.

TRAFFIC MANAGEMENT

A traffic management plan would be developed and implemented for any of the Build Alternatives during a future engineering phase to ensure reasonably convenient access to farms, residences, businesses, community services, and local roads during construction. WisDOT would coordinate construction activities, sequencing and traffic operations with local fire, police, and emergency rescue services to minimize delays during the construction period.

AESTHETICS

Although the visual scale of the highway will increase, landscaping features within and adjacent to the highway right-of-way would minimize adverse effects. A landscaping plan that will be developed during a future engineering phase could include a variety of native grasses and mixed evergreen and deciduous shrubs on the highway sideslopes and backslopes, and in the highway median except where clear vision needs to be maintained at intersections and median openings. As a visual screen, trees could be planted outside the safety clear zones. Local governments and subdivision residents can also plan for and implement landscaping features such as earth berms, shrubs, and trees in buffer areas between the highway right-of-way and residential subdivisions. WisDOT Aesthetic Funding would be available for visual amenities.

NOISE AND AIR QUALITY

There would be traffic noise impacts to some adjacent receptors under the Build Alternatives. The preliminary noise barrier analysis indicated that noise barriers do not appear to be economically practical.

To reduce the potential construction noise impacts, the construction contract's special provisions would require that motorized equipment be operated in compliance with all local, state, and federal laws and regulations relating to noise levels permissible within and adjacent to the project's construction areas. At a minimum, the special provisions would require that motorized construction equipment not be operated between 10 p.m. and 6 a.m. without prior written approval of the project engineer. All construction equipment would be required to have mufflers constructed in accordance with the equipment manufacturer's specifications or a system of

equivalent noise reducing capacity. Mufflers and exhaust systems would be required to be maintained in good operating condition and free of leaks and holes.

Dust control during construction would be accomplished in accordance with WisDOT's *Standard Specifications for Road and Bridge Construction* which requires application of water or approved dust control measures during grading operations and on haul roads. The location of pavement material batch plants would be in accordance with the *Standard Specifications* or any special provisions developed during coordination with the DNR regarding air quality standards and emissions. Open burning of construction waste or brush is not allowed since the project is located in a county that is non-attainment for air quality. Any portable material plants would be operated in accordance with DNR air quality requirements/ guidelines. Demolition and disposal of structures is regulated under the DNR's asbestos renovation and demolition requirements (Wisconsin Administrative Code, Chapter NR 447).

PROPERTY ACQUISITION

Federal property acquisition law provides for payment of just compensation for businesses and residences displaced for a federally funded transportation project. Acquisition price, replacement dwelling costs, moving expenses, increased rental or mortgage payments, closing costs, and other relocation costs are covered for residential displacements. Acquisition and relocation costs for business displacements are also covered under federal law. State law would cover increased rental or mortgage payments and closing costs for businesses.

Under state law, no person or business would be displaced unless a comparable replacement dwelling, business location, or other compensation (when a suitable replacement business location is not available) would be provided. Compensation is available to all displaced persons without discrimination.

Property acquisition not involving residential, business, or other building relocations is compensated in accordance with state and federal laws. The value of affected land would be appraised in consultation with the owners, and the owners would be compensated at fair market value. Owners are given the opportunity to obtain an independent appraisal. If agreement on fair market value cannot be reached, the owner would be advised of the appropriate appeal procedure.

Any septic tanks, drain fields, or wells on acquired properties would be abandoned in accordance with state regulations and local zoning standards.

MATERIAL SOURCE / DISPOSAL SITES

Selection of material source sites would be the responsibility of the construction contractor. It is expected that material would be obtained from local quarries. The contractor would dispose of unusable excavated material in accordance with WisDOT *Standard Specifications for Road and Bridge Construction* or special provisions to ensure protection of wetlands and waterways.

Spoil and excavated material (including vegetation) would be stockpiled and disposed of in an upland area away from wetlands, streams, and other open water. Where applicable, silt fences would be placed between the disposal area and wetland or any open water areas.

If any material sources are necessary to construct the project, appropriate erosion control measures would be applied to these sites during and following construction. Following their use, such sites would be properly seeded, mulched, and protected from erosion.

Any portable materials plants would be properly treated to prevent erosion, and the DNR would be provided an opportunity to review site plans including gravel washing operations, high capacity wells, and site closure/restoration.

WATER QUALITY

Construction in and near waterways would be performed in accordance with WisDOT *Standard Specifications for Road and Bridge Construction* and Wisconsin Administrative Code Chapter TRANS 401—*Construction Site Erosion Control and Storm Water Management Procedures*. Erosion control devices would be installed before erosion-prone construction activities begin. Construction at stream crossings along the WIS 83 corridor would be conducted during periods of low or normal flow. Temporary and permanent erosion control methods are discussed in detail earlier in Section 4 under "Erosion and Sedimentation."

- Under revisions to the WisDOT/DNR Cooperative Agreement (*Memorandum of Understanding on Erosion Control and Storm water Management*), post-construction storm water quality control measures must be provided on urban highway construction projects that include curb and gutter and storm sewers for conveyance of storm water. A detailed discussion of storm water management techniques is found earlier in Section 4 under "Storm Water Management." The WisDOT/DNR Cooperative Agreement will be adhered to. Additional impact mitigation techniques during construction would include the following as needed at a particular location.
- If dewatering is required, dirty water would be pumped into a stilling basin before being allowed to reenter a stream.
- Trenched-in erosion bales would be installed in areas of moderate velocity runoff; clean-aggregate ditch checks would be installed in ditches with moderate to high velocity runoff during and after construction; and ditches would be protected with erosion bales and jute matting in conjunction with seeding.
- Construction equipment would be stored and fueled in upland areas, away from sensitive environments. Accidental spills during refueling at construction sites or as a result of an accident involving hazardous materials haulers would be handled in accordance with local government response procedures. First responders would be through local fire departments and emergency personnel to ensure public safety and to contain immediate threats to the environment. Depending on the nature of the spill, the DNR would then be notified to provide additional instructions regarding cleanup and and restoration of any affected resources. The cost of cleanup operations is the responsibility of the contractor or carrier involved in the spill. Further, WisDOT's *Standard Specifications* state that public safety and environmental protection measures shall be enforced by the project contractor.
- Disturbed areas would be revegetated as soon as practicable following completion of construction activities, preferably with native vegetation.

- Contractors would be required to follow DNR guidelines for ensuring that construction equipment used in or near waterways is adequately decontaminated for zebra mussels and exotic plants, including purple loosestrife and Eurasian milfoil.

The following additional measures to minimize water quality impacts were recommended by DNR:

- No in-stream work in Scuppernong Creek, Genesee Creek and Spring Brook between October 1 and March 30 of any construction year to protect fish spawning. Further, any stream relocations should be done prior to September 15th of any construction year. *These construction constraint dates would be incorporated into the project's special provisions during a future engineering phase.*
- In order to preserve the cold water temperature in Scuppernong Creek, Genesee Creek and Spring Brook, trees and streambank vegetation should not be removed, and any branches or tree-falls present in the streams should be left in place to provide cover for migrating trout, and no limestone rip rap placed in the water. *Streambank disturbance including vegetation removal, and removal of any existing tree-falls in the streams would be minimized to the extent practicable and no limestone rip rap would be allowed in the water.*
- A minimum of 5 feet (1.5 meters) navigational clearance should be provided at the WIS 83/Bark River crossing. *The existing structure is a single span concrete girder bridge with over 5 feet (1.5 meters) of clearance. Any replacement structure or extension of the existing structure would provide the required navigational clearance.*
- Lapham Peak State Park and Waukesha County lands that abut WIS 83 between I-94 and US 18 are tiled. As the agricultural use of this land ends, the tiles may be broken to recreate wetlands. Such wetlands could affect WIS 83 right-of-way. *The agricultural fields are on the west side of Scuppernong Creek and are not expected to affect the WIS 83 right-of-way which is generally east of Scuppernong Creek.*
- Runoff from the highway should be controlled and a possible settling pond would be appropriate to keep runoff from spilling directly into Scuppernong Creek. *While detailed storm water treatment methods would be developed in a future engineering phase in consultation with DNR, the Scuppernong Creek crossing has been recommended in the EIS as a location for a storm water pond. A grassed or wetland buffer ranging in width from 130 to 300 feet (40-91 meters) would also be provided between WIS 83 and Scuppernong Creek.*
- All construction activities should be conducted in an environmentally sound manner including proper disposal of demolition material that cannot be recycled, maintenance of adequate drainage patterns, design and implementation of sound erosion control practices. *Demolition material would be disposed of in non-wetland or floodplain areas, existing drainage patterns would be maintained, and sound erosion control practices would be implemented.*
- Impacts on wetlands or surface waters directly or via storm sewers must be assessed and measures taken relative to anticipated changes in storm water discharge, velocity, or water quality. *Preliminary investigations indicate that storm water facilities would likely be required at several low spots along the WIS 83 urban/suburban segments and also in rural areas where streams cross the roadway. These facilities are generally ponds and infiltration basins and are noted in the Section 4 of the EIS. Details will be coordinated during a future engineering phase.*

- Excess fill material or spoil should be stockpiled on upland areas an adequate distance away from wetlands, storm sewer inlets, floodplains and waterways. Stockpiles shall be protected against erosion and shall not create nuisance dust emissions. *WisDOT's Standard Specifications for Road and Bridge Construction cover these concerns. Stockpiled material would be placed in an upland area away from wetlands and water-related resources. Haul roads and other construction site features would be "watered" or otherwise protected from dust emissions.*
- Should contamination be encountered within highway right-of-way either before or during construction, WisDOT must notify the DNR Solid Waste section prior to continuing construction or other operations. *WisDOT or its authorized agent (such as the construction contractor) would make the necessary notifications.*

FLOODPLAIN AND HYDRAULICS

All structures would have adequate capacity for 100-year flood flow without public or emergency vehicle interruption from damage to the roadway or structures. None of the floodplain crossings would cause a substantial potential for interruption or termination of a transportation facility needed for emergency vehicles or the community's only evacuation route. Crossings would be consistent with local floodplain management goals and objectives. Impacts to natural and beneficial floodplain values would be minimized to the extent practicable.

WETLANDS

Presidential Executive Order 11990, *Protection of Wetlands*, requires federal agencies to avoid to the extent practicable, long- and short-term adverse impacts associated with the destruction or modification of wetlands. More specifically, the Order directs federal agencies to avoid new construction in wetlands unless there is no reasonable alternative. The Order states further that where wetlands cannot be avoided, the proposed action must include all practicable measures to minimize harm to wetlands. In accordance with state and federal agency policies and regulations for wetland preservation, including the *Section 404(b)(1) Guidelines for Specifications of Disposal Sites for Dredged or Fill Material* (40 CFR, Part 230), the following discussion summarizes wetland mitigation strategies for the WIS 83 project.

Wetland Avoidance

Because the reasonable Build Alternatives are oriented to the existing WIS 83 corridor, where there are scattered wetlands along both sides of the highway, it is not possible to avoid wetland impacts completely. However, where possible and practical, the alignment was shifted to avoid wetland impacts. The Off-Alignment Alternative (Alternative D) in the Genesee Depot area also crosses an area of wetlands.

Minimize Wetland Impacts

The reasonable Build Alternatives presented in Section 2, Alternatives, include alignment shifts where practicable to minimize wetland impacts. In addition, the urban and urban/rural hybrid typical sections reduce the amount of right-of-way required and minimize wetland impacts. During a future engineering phase, WisDOT would investigate additional measures to minimize wetland impacts such as keeping roadway sideslopes as steep as practicable, disposing of excavated material on new roadway sideslopes or in an upland area, use of

equalizer pipes to maintain wetland hydrology, and strict erosion control measures to minimize sedimentation and siltation into adjacent wetlands.

Wetland Compensation

Compensation for unavoidable wetland loss will be carried out in accordance with the interagency *Wetland Mitigation Banking Technical Guideline* developed as part of the WisDOT/DNR *Cooperative Agreement on Compensatory Wetland Mitigation.* Because the proposed WIS 83 improvements are long term, a specific wetland compensation plan will be developed in a future engineering design phase, in consultation with state and federal agencies. First priority will be given to seeking a nearby wetland restoration site. As an alternative, use of an established WisDOT wetland bank site would be considered. In either case, unavoidable wetland loss will be fully compensated at an appropriate replacement ratio that would be no less than 1 : 1 (one acre restored/created for each acre lost). The final ratio could vary depending on the criteria presently in place in the *Wetland Mitigation Banking Guideline.* For example, if a nearby wetland restoration site is established concurrent with the wetland loss, the replacement ratio can range from 1.5 : 1 to as high as 2 : 1 depending on the risk assessment regarding the probable success of the "created" or "restored" wetland. Similarly, if an established wetland bank is used, factors such as proximity to the project area, and types of wetlands available at the bank versus those lost, could influence the replacement ratio.

THREATENED AND ENDANGERED SPECIES

As discussed in EIS Sections 3 and 4, the following fish species are potentially present in the WIS 83 corridor:

- Genesee Creek: Longear Sunfish (threatened), Lake Chubsucker (special concern)
- Scuppernong Creek: Ozark Minnow (threatened), Lake Chubsucker (special concern)
- Bark River: Least Darter (special concern), Slender Madtom (endangered), Mottled Darter (special concern), Pugnose Shiner (threatened)

Strict erosion control measures during construction of new structures or structure extensions over these waterways would minimize the potential for water quality impacts due to sedimentation and siltation. Avoiding any in-stream construction during critical spawning periods would also minimize potential impacts to these species. In general, based on information from DNR's website and correspondence in Appendix C, the spawning periods for the listed species cover a time frame from mid-April through early August. Specific construction constraint dates would need to be determined in consultation with DNR during a future engineering phase.

The Silphium Borer Moth, a state-listed endangered moth, is known to occur in the wet open areas near the Off-Alignment Alternative (Alternative D) in the Genesee Depot area. Minimizing wetland disturbances during construction would reduce impacts associated with this species.

Barn swallow nests are located under the WIS 59 and Bark River structures along the WIS 83 corridor. Mitigation measures typically used by WisDOT to avoid impacts to barn swallow nests include the following:

- Demolition of the existing structure, if needed, would occur outside the nesting season (May 15 to August 20) or would take place during the nesting season if a depredation permit is obtained from the U.S. Fish and Wildlife Service.
- The nests would be removed before the nesting season, or other means would be implemented to prevent nesting such as placement of netting on the structure prior to the nesting season.

The Blanding's Turtle, a state-listed threatened species, is present at three locations that would be affected by one or more of the Build Alternatives. A specific conservation plan would need to be developed in consultation with the DNR to minimize adverse effects on essential habitat and to conserve this species. The conservation plan may include the following measures that have been recommended by Casper Consulting who conducted the herptile assessment for the WIS 83 Corridor Study:

Habitat Avoidance
The Build Alternatives would be located and designed to avoid the turtle's habitat as much as possible. The Off-Alignment Alternative (Alternative D) contains critical Blanding's Turtle habitat. The wetland/upland interface areas are considered to be the most important habitat component as the turtles migrate during foraging, nesting, and hibernation.

Exclusion Techniques
If construction occurs in areas occupied by Blanding's Turtles, it is recommended that direct mortality be minimized by turtle removal prior to construction and turtle exclusion during construction.

Habitat Management
The conservation plan may also address habitat management that could consist of fostering appropriate wetland and upland habitat type adjacent to the highway.

Movement Corridors
To help insure the long-term survival of existing Blanding's Turtle populations underpasses (or bridges) will be constructed at the four locations where turtle habitat is found on both sides of the highway. These locations are at the tributary to the Fox River, about 3,000 feet (4,800 km) south of County I, Spring Brook, and the west branch of Genesee Creek. This technique would help maintain or restore the genetic integrity of existing populations by allowing turtle dispersal between sites currently isolated from each other by the existing highway.

Monitoring
To ascertain whether preservation measures are successful, WisDOT will monitor Blanding's Turtle populations 3 years and 5 years following construction. This would consist of repeating the protocol used during the initial survey to determine whether there have been any substantive changes in Blanding's Turtle populations at the four movement corridor locations.

ARCHAEOLOGICAL RESOURCES / CEMETERIES

The Phase 1 archaeological investigation for the WIS 83 corridor identified one prehistoric site near the project's south terminus. The site is located on both sides of WIS 83 and yielded 27 lithic artifacts and could possibly contain undisturbed archaeological deposits and subsurface

features below the plow zone. Therefore, a phase 2 investigation was recommended. The phase 2 investigation was conducted in summer 2003, and no additional materials were found that would indicate site significance or eligibility to the National Register. State Historical Society review of the archaeological investigation report is pending, and the results will be included in the Final EIS. It is not anticipated that any measures to minimize adverse effects will be required for this site.

The Jerusalem Cemetery is adjacent to the east side of WIS 83 just north of County G. Documentation for the cemetery indicates that no burials are within the Build Alternative limits. Proposed WIS 83 improvements at the Jerusalem Cemetery include replacing the existing roadway curb along the cemetery and there will be no encroachment on the cemetery property.

The Salem Cemetery is adjacent to the west side of WIS 83 south of Welsh Road. Documentation for the cemetery indicates that no burials are within the Build Alternative limits. Proposed WIS 83 improvements at the Salem Cemetery include constructing a multi-use path and new roadway curb just inside the existing curb line near Welsh Road where the majority of existing graves are located. Construction on this north end will occur within existing and previously disturbed WIS 83 right-of-way. Although the roadway alignment has been shifted east to the extent possible and a minimal 4-lane cross section is being proposed, there will be encroachment and strip right-of-way acquisition along the south portion of the cemetery where there are a few existing graves. A triangular right-of-way strip would be required. There is no evidence that there are existing graves within the area of disturbance.

USEPA POLLUTION PREVENTION STRATEGIES

Energy Efficient Lighting

Lighting requirements, if any, would be developed during a future engineering phase. Where lighting is appropriate, it would be implemented using energy-efficient systems.

Use of Recycled Rubber Tires

WisDOT has limited opportunity to use old tires in highway construction. However, old tires have been used to a limited extent in asphalt pavement. In Wisconsin, used tires are incinerated as a fuel source for power plants.

Use of Coal Incinerator Ash

WisDOT uses coal incinerator ash in various highway construction activities: fly ash (smoke stack precipitant) is used in place of Portland cement in concrete, and bottom ash (boiler ash) is used for roadway embankment fill and on town road maintenance projects.

Use of Recycled Plastics

WisDOT uses recycled plastics for items such as fence posts, curb bumpers, rest area picnic tables, and right-of-way markers.

Use of Clean Construction / Demolition Debris

Recycled asphaltic pavement is used in new pavement, for roadway shoulders, as base course, and for town road repair. Recycled concrete pavement is used in new concrete, as base course, and as

riprap for shoreline and stream bank stabilization. Recycled asphaltic shingles are used for new asphaltic pavements. Local governments reuse silt fences when practical.

PERMITS AND RELATED APPROVALS

Chapter 30, *Wisconsin Statutes,* administered by the DNR, requires permits for structures and deposits into navigable waters. Section 30.12(4)(a) provides an exemption to the permit requirements for WisDOT actions carried out in accordance with interagency liaison procedures to minimize the adverse effects of transportation actions on environmental resources. Liaison efforts under the *DOT/DNR Cooperative Agreement* cover project development from early corridor alignment studies through selection of a recommended alternative, design, and construction. Coordination with the DNR has been ongoing while developing and refining the alternatives presented in this EIS.

Wisconsin's Endangered Species Law (Section 29.604, *Wisconsin Statutes*) requires an Incidental Take Permit from the DNR for impacts on critical habitat for state-listed threatened or endangered species. Because WisDOT is a state agency, the formal consultation that has occurred and will continue during future design phases precludes the need for an Incidental Take Permit. The DNR will hold a 30-day comment period on the project's potential impact on the Blanding's Turtle. Following the comment period, the DNR will prepare a Findings of Fact concerning the impact. If signed, the Findings of Fact would authorize the impact.

Section 32.25, *Wisconsin Statutes,* requires that Relocation Assistance Plans for displaced residences and businesses be approved by the Wisconsin Department of Commerce.

Stream and wetland impacts are subject to permits under Section 404 of the Clean Water Act. This permit program, administered by the U.S. Army Corps of Engineers, covers the discharge of fill material into waters of the United States, including wetlands. Issuance of Section 404 permits is contingent on receipt of water quality certification from the DNR under Section 401 of the Clean Water Act, and Wisconsin Administrative Code Chapter NR 299.

Another Clean Water Act provision that governs the discharge of dredged or fill material is provided in the Section 404(b)(1) *Guidelines for Specification of Disposal Sites for Dredged or Fill Material* (40 CFR Part 230), administered by the USEPA and the U.S. Army Corps of Engineers. The guidelines are premised on the mandate that dredged or fill material should not be discharged into aquatic ecosystems (including wetlands) unless it can be demonstrated that there are no practical alternatives to such discharge, that such discharge will not have unacceptable adverse impacts either individually or in combination with known or probable impact of other activities, and that all practicable measures to minimize adverse effects are undertaken. Wetlands located in primary environmental corridors as defined by SEWRPC are included in USEPA's Wetlands Advance Identification (ADID) program. Such wetlands are considered unsuitable for discharge of dredged or fill material unless it can be demonstrated that there are no practicable alternatives to the discharge.

The EIS process for the WIS 83 study is being carried out under the March 1994 *Concurrent NEPA/Section 404 Processes for Transportation Projects*. This agreement between the Federal Highway Administration, the USEPA, the U.S. Fish and Wildlife Service, and the U.S. Army Corps of Engineers specifies three concurrence points in the NEPA process: purpose and need,

alternatives to be carried forward for detailed study, and selection of a recommended alternative. Appendix C contains copies of correspondence received from agencies regarding purpose and need and alternatives.